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ABSTRACT

This report presents the results of a study designed to determine how classroom practices supported by proponents of educational redesign correlate with the classroom environment that teachers and students prefer. The study correlated the differences in teachers' and students' perceptions of actual and ideal classroom environment with learning-centeredness in 11 high school classrooms in a midwestern town. It was expected that in classrooms which are learning-focused and learner-centered, the differences between teachers and students perceptions of actual and ideal classrooms would be smaller. Results of the Classroom Environment Scale and observation of learning-centeredness revealed that the smallest differences in perception correlated with the most learning-centered classes in a comparison of students' perception of their ideal and actual classroom environments. The results of the study are discussed in relation to previous studies of both differences of perception of classroom environment and learning-centeredness. The significance of the smaller perceptual difference in a learning-centered classroom is discussed in terms of its implications for those interested in redesigning education. Copies of a classroom observation worksheet and the Classroom Environment Scale are appended. (20 references) (DB)

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Assessing Classroom Climate for Educational Redesign: Learning-Centeredness and Perception Differences

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Abstract

This study correlated the differences in teachers' and classes' perceptions of actual and ideal classroom environment with learning-centeredness in 11 high school classrooms in a midwestern town. Results of the Classroom Environment Scale (CES)(Fraser, 1986) and observation of learning-centeredness revealed that the smallest differences in perception correlated with the most learning-centered classes in a comparison of the students' perception of their ideal and actual classroom environments. The results of this study are discussed in relation to previous studies of both differences of perception of classroom climate (Fraser, 1985; Raviv, Raviv, and Reisel, 1990) and learning-centeredness (Banathy, 1991). The significance of the smaller perceptual difference in a learning-centered classroom is discussed for its implications for those interested in redesigning education.

Assessing Classroom Climate for Educational Redesign:

Learning-Centeredness and Perception Differences

In the last decade, there has been a growing awareness of the need for change in education to match the demands of living in a changing world. In the United States, there has been an outcry from parents, teachers, communities and government to find the means to make these changes (Banathy, 1991). The challenge for redesigning education is to do more than make short-term improvements to the conventional approaches used in the past. The challenge is to identify the critical systemic changes that might make a difference in student achievement and satisfaction in the long term. One critical area where some researchers contend change is most possible is in classroom climate, or the socio-psychological environment of the classroom (Walberg, Welch, and Fraser, 1985).

The purpose of this study is to try to determine how classroom practices supported by proponents of educational redesign correlate with the climate that teachers and students prefer in an ideal classroom. Researchers of classroom climate (Raviv, Raviv, and Reisel, 1990) have found there are perceptual differences between students and teachers of their actual and ideal climate. Educational redesigners, Banathy (1991) and Reigeluth (1988) contend that in a redesigned classroom, learning and learners would be the focus of activity. The researchers in this study wanted to investigate how changes in classroom focus might relate to changes in perceptual differences.

In a synthesis of research by Walberg (1984), classroom climate, as a part of environment in general, was found to be one of the major causal influences on learning

(p.21). Moos and Trickett (1974) define classroom climate as the classroom environment encompassing three major domains: personal development, which includes involvement, affiliation and teacher support; system maintenance, which includes task orientation and competition; and relationship, which includes order and organization, rule clarity, teacher control and innovation (Raviv, Raviv, and Reisel, 1990, p. 145). In his review of over 3,000 studies, Walberg (1984) points out that several national reports and instructional theories had ignored the strong influence these factors have on the learning: "The psychological morale or climate of the classroom groups, for example, strongly predicts end-of-course measures of affective, behavioral and cognitive learning" (p.24).

Although largely ignored at the education report and instructional theory level, much research has been devoted to the investigation of perception of classroom climate, particularly as perceived by students. Raviv et al. (1990) summed this educational research as showing that "climate, as measured by students' perceptions of their classroom environment, is a useful construct in predicting achievement and school satisfaction, (Galluzi, Kirby, Zuchner, 1980; Moos, 1987; Wright & Cowen, 1982)" ... as well as "contributing to the understanding of the social processes of the classroom (Moos, 1979; Stern, 1970; Walberg, 1976)" (p. 142).

Recent research into the perception of classroom climate has included investigation into the differences between the perceptions of students and teachers of actual and ideal climate. Typically, the difference between their perceptions of the ideal classroom climate has been smaller than that of their perceptions of their real classroom (Raviv, Raviv, and

Reisel, 1990). According to them, in the ideal classroom:

> ...both (teachers and students) would prefer to have the students more involved and taking greater initiative in class activities (involvement), have the teachers introduce new ideas and techniques (innovation), and have the class function in a calmer and more orderly fashion (order and organization). The students perceived the teachers not only as supportive (teacher support), but also as responsible for clarifying the rules for the class (rule clarity) and would emphasize both aspects in their ideal classroom. The classes differentiated between rule clarification and enforcement and would prefer a lower degree of the latter. When referring to the ideal classroom, both teachers and classes would opt for lower degree of the following dimensions: competition, teacher control and task orientation. (p. 151).

Banathy (1991) and Reigeluth (1988) have suggested an ideal learning environment in a restructured classroom would follow a learning-focused model rather than the conventional teaching-focused model. Although there has been little research on the learning-focused classroom, there has been research into learner-centered classrooms. The learning/teaching focus is a much broader (and ultimately more systemic) perspective and would subsume the roles of the classroom actors. Banathy (1991) makes the relationship clear: "When instruction is in focus, the teacher is the actor on the instructional scene and the students, as a class, are the audience. When learning is in focus, the learner is the actor and the teacher becomes the manager of learning resources" (p. 101).

Therefore, learner/teacher centered classroom research provides a basis for examining

the focus of the classroom activity. Two independent movements in psychology after World War II produced much influential research on nondirective, group-centered or student-centered discussion methods. Carl Roger's nondirective approach to counseling and Kurt Lewin's "group dynamics" influenced research on student or group-centered learning (McKeachie, 1990, p. 191). Both of their perspectives indicated that in the student-centered classroom, the teacher's role is less as expert and authority and more a role of facilitating student responsibility for learning.

Compared to conventional discussion methods, a student-centered discussion is characterized by much more interaction between students and more student responsibility for decisions about the goals and activities of the class. In student-centered learning, the goal of education was expanded beyond subject matter knowledge to learning linked to motivation, attitudes and deeper understanding. Subsequent studies found that group-centered methods were superior to recitation methods not only in cognitive outcomes, but also in changes in self-confidence, leadership and other personality variables. These group-centered methods and learning-focused practices sound very similar to the ideal classroom perceived by students and teachers in Raviv et al.'s research in 1990.

Thus, in classrooms which are learning-focused and learner-centered, we would expect the climate of the actual and climate of the ideal to come closer to matching for both teachers and students. The difference between teacher's and students' perception of both the actual and ideal climate in the redesigned classroom should be smaller. In the preferred, ideal classroom, certain characteristics of the classroom climate would appear more

significant than others in reducing that difference, i.e., involvement, innovation or the other relevant factors suggested by Raviv et al. (1990).

These expectations can be expressed as four hypotheses:

hypothesis 1: the greater the learning-centeredness of the classroom, the smaller the perception differences between the teacher's and students' ideal classroom climate (TI-SI);

hypothesis 2: the greater the learning-centeredness of the classroom, the smaller the perception differences between the teacher's and students' actual classroom climate (TA-SA);

hypothesis 3: the greater the learning-centeredness of the classroom, the smaller the perception differences between the teacher's ideal and actual classroom (TI-TA); and

hypothesis 4: the greater the learning-centeredness of the classroom, the smaller the perception differences between the students' ideal and actual classroom climate (SI-SA);

The goal of the present research is to determine which of these relationships find more support in this particular group of classrooms.

It is also anticipated that in the more learning-focused classroom certain dimensions of climate will be more evident. The researchers believe that if teachers and students could identify and measure these characteristics there would be more opportunity for the classroom to move toward whatever changes seemed necessary to bring all members closer to their ideal climate and presumably closer to a learning-focused classroom where learning becomes the student's responsibility and builds toward life-long learning habits.

Like Walberg (1984) and Raviv et al.(1990), Fraser (1986) presents compelling evidence that the classroom environment is a potent determinant of student learning outcomes

and believes it should not be ignored by those wishing to improve the effectiveness of learning. Although much has been done on student's perceptions of classroom learning environment, Fraser contends that very little has been done to help teachers assess and improve the environments of their classrooms (p. 168). He points out that feedback information based on student's perceptions has been employed as a basis for reflection (Fisher and Fraser, 1985; Fraser, 1981, 1985; Pierce, Trickett and Moos, 1972), and believes that instruments such as the CES provide teachers with meaningful information about problem areas and a tangible basis to guide improvements in these areas (p.179).

Thus, not only is the purpose of this study to determine the relationship between climate and student-centeredness, but also to help teachers identifying changes they might focus on to redesign classroom environment to enhance life-long learning.

Method

Respondents

The respondents in this study are 225 students and 13 teachers from 11 classes, grades 9-12, in a high school in a midwestern town. The 11 classes were selected by the school's principal based on three criteria: first, the teachers were willing to participate in the study; second, they were all good teachers who, according to the principal's recommendation, were interested in improving their instruction to make learning more effective; and, third, the 11 classes represented a variety of subject areas.

Variables

The variables in this study are learning-centeredness and perception of classroom

climate. According to McKeachie (1954) and Banathy (1990), a learning-centered class has four essential characteristics: Less "teacher talk", more student-group interaction, more student-resource interaction and more student-student interaction. Teacher talk refers to teacher monologue (presentation) and teacher-initiated questioning. Student-group interaction includes small or large group activity which is engaged in by the majority of students simultaneously. Student-resource interaction is defined as student-initiated interaction with resources, both human and nonhuman resources. Human resources are teachers and peers, whereas nonhuman resources are computers, reference books, videotapes, and other hands-on equipment or materials. Student-student interaction is specified as any kind of public interaction relevant to class activity between two students at one time, with other students attending to them. The degree of learning centeredness depends on whether there is occurrence of the four types of behaviors and how long each behavior lasts. For any of the four types of classroom behavior, the longer the class time is devoted to it, the more the class is oriented to that (those) behavior(s).

Perception of classroom environment is defined as the teacher's and students' perception of the six dimensions of classroom environment: Involvement, Affiliation, Teacher Support, Task Orientation, Order & Organization, and Rule Clarity. Involvement is the extent to which students have attentive interest, participate in discussion, do additional work and enjoy the class. Affiliation refers to the extent to which students help each other, get to know each other and enjoy working together. Teacher Support means the extent to which the teacher helps, befriends, trusts, and is interested in students. Task Orientation

underlies the extent to which it is important to complete activities planned and to stay on the subject matter. Order and Organization is the extent to which students behave in an orderly quiet and polite manner, and the overall organization of classroom activities. Rule Clarity focuses on clear rules, on students knowing the consequences for breaking rules, and on the teacher dealing consistently with students who break rules.

The 11 classes are positioned according to their degree of learning-centeredness, along the continuum, from the most learning-centered to the least, and labelled accordingly A, B, C, ... to K. There are four levels of perception of classroom climate: the teacher's perception of the actual classroom climate (TA), teacher's perception of the ideal classroom climate (TI), students' perception of the actual classroom climate (SA), and students' perception of the ideal classroom climate (SI).

This study examines the relationship between the degree of learning-centeredness and teacher and students' perception of actual and ideal classroom climate, captured in Table 1.

TABLE 1

Variable Matrix

respondent forms / Learning-centeredness	perception of classroom climate			
	Teacher's		Students'	
	Actual	Ideal	Actual	Ideal
A				
B				
C				
D				
E				
F				
G				
H				
I				
J				
K				

Instruments

The instruments used to measure the two variables are the observation form (See Appendix A), which the researchers designed to identify the degree of learning-centeredness, and the short forms of Classroom Environment Scale (See Appendix B), which were used to elicit teacher's and students' perception of the actual and ideal classroom climate (Raviv, Raviv, and Reisel, 1990). Learning-centeredness was identified through direct classroom observation of verbal interaction between teacher and students, or among students, and nonverbal interaction with nonhuman resources. Four types of behavior were recorded. In measuring perceptions, the four short forms of the Classroom Environment Scale (CES) were used in the study, i.e. the Teacher Actual form, the Student Actual form, the Teacher Ideal form, and the Student Ideal form.

The forms for the teacher and the students are exactly the same. In the ideal classroom form, the word 'would' is added to the verb in the original CES form. The CES was originally developed by Moos and Trickett (1974) for secondary-level classrooms and both the original and short forms are widely used high-inference instruments (Raviv, Raviv, and Reisel, 1990). The original CES contained a total of ninety items for the nine dimensions measured. The nine original dimensions were Involvement, Affiliation, Teacher Support, Task Orientation, Competition, Order and Organization, Rule Clarity, Teacher Control, and Innovation. The short form does not include Competition, Teacher Control and Innovation as they displayed unsatisfactorily low internal reliability during the development process (Fraser, 1986).

Procedure

To achieve more reliable observations, the researchers practiced using the observation form in three different settings before going into the field: videotape viewing, observation of a research class in a university, and observation of a Montessori school. The observers discussed the essence of the behaviors to be observed before each practice. After each practice, the observers examined each item on the form to make sure it was well defined and clear to each observer, and compared and contrasted their degree of agreement to increase reliability.

The observation form went through several changes as it was tested in the field to increase its validity. After the first practice, those behaviors which were not observable or difficult to label or categorize were dropped and the form was revised. The revised form, in contrast to the original one which aimed at frequency, was comprised primarily of yes-no questions and was tested in the university class.

Items in the second version of the form were rewritten to elicit more objective information and leave less to personal interpretation. A third version was generated before the observation of the Montessori school. This version had limited, observable, defined behaviors to increase the validity of the instrument. In addition, in the last practice of the observation form, reliability among the four observers was increased to 90.2%. Beginning and ending timing in each category for each of the four observers were subtracted from the total possible time and a score was derived from the percentage of agreement.

To further increase reliability, the observers were randomly paired and randomly

assigned to the classes to measure the percentage of learning-centeredness.

Debriefing of the observers followed class observations concerning the recording of class activities and the activities' duration in the 11 classes. Different interpretations of the same class activity were brought up and duration of each activity was double checked between observers.

In all classes, classroom behavior (the duration of teacher talk, group interaction, student-student interaction, and student-resources interaction) were immediately recorded. There were varying amounts of time across the four categories. Total activity time was obtained by summing up the amount of duration of all four categories. Only teacher talk contributes to teaching-centeredness, whereas the other three categories of classroom behaviors are attributable to learning-centeredness. Therefore, the degree of teaching-centeredness was derived from the amount of time spent on teacher talk, divided by the total activity time, which, when subtracted from 1, would be degree of learning-centeredness. Percentages scored in such a manner based on the observation data of the 11 classes were then ranked from the most learning-centeredness to the least.

When administering the CES short forms, the instructions were read aloud and any questions were answered before the respondents' began circling "true" or "false" on the twenty-four item CES scale. The students in each class were divided randomly into two equal groups. One group was instructed to complete the CES short form in relation to the actual class they were in at the moment (actual form), and the other half was instructed to complete the CES scale for the type of class they would consider to be ideal (ideal form).

The teacher completed both forms of the questionnaire. Approximately 10-15 minutes was required to administer the questionnaires.

For every class there were four CES profiles: Teacher Ideal, Teacher Actual, mean Class Ideal, and mean Class Actual. Each consisted of the six dimension scores. The researchers hand scored the forms. The higher the score on each of the six dimensions, the greater the degree of that quality was perceived. Means and standard deviations of the scores of each class, including that of the teacher's and students', were calculated across the six dimensions. The unit of analysis was the means of each class. To verify the four hypotheses, mean scores of the perception differences in the six dimensions of the CES were first calculated and then the mean of those scores was obtained for testing each hypothesis.

Results

Learning-Centeredness of Classes

Based on the observations of the two teams of observers, the 11 classes were labelled according to their percentage of learning-centeredness. To serve the purposes of comparison and reference, each of the 11 classes was assigned a letter in order, i.e. from the most learning-centered class which was labelled as Class A, down to the least learning--centered one which was identified as Class K.

Each class has a different percentage of learning-centeredness, from 0 % to 100 %. Figure 1, on the following page, indicates the percentage of learning-centered activities observed in each class. Of the activities in Classroom A, 100 % were characterized as learning-centered, while all the other ten classes carried less than 53.5 % learning-centered

activities. Classes J and K were both designated as having 0% learning-centered activities. Apparently, despite the fact that the 11 classes spanned the range from 0 to 100% of learning-centered activities, most of the classes fell on the less learning-centered half of the continuum. Other than Class A with 100% of learning-centered activities, only half of the activities observed in the next two classes were designated as learning-centered while one third or less of the activities in the other eight classes were identified as learning-centered (See FIGURE 1).

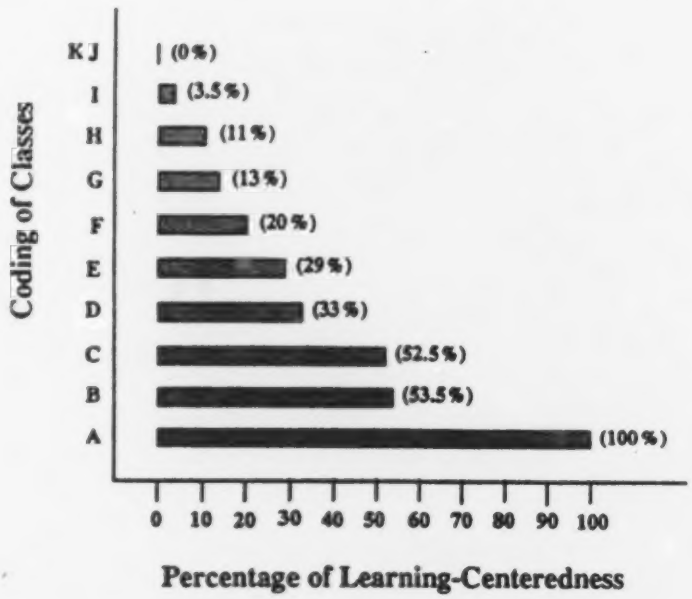

FIGURE 1 **Coding of Classes According to Learning-Centeredness**

Classroom Environment Scale

Two findings of the CES scores stand out They were revealed when the results of the

CES for the 11 classrooms were organized around the four hypotheses. In hypothesis 1, where teacher's ideal and student's ideal scores were addressed (TI-SI): the difference of teacher's and students' perception scores of ideal classroom was very small. The mean score of the perception differences of the 11 classrooms was 1.29, compared to the possibly highest score of 12. An examination of the different scores suggested by each of the four sets of perception differences (TI-TA, SI-SA, TA-SA, TI-SI) leads to the first finding: the discrepancies between each of the above four perception difference are small. The greatest difference ways found in Teacher's perception of Actual and Students' perception of Actual (TA-SA), where the mean score of the perception differences was 1.31, opposed to the possibly highest of 12. For Student Ideal and Student Actual (SI-SA), the difference was 1.05 and for Teacher Actual and Teacher Ideal (TA-TI), was 1.21. These mean scores are shown in Appendix C.

The second finding of the CES confirmed the direction of previous findings of Raviv et al. (1990). In their study, they found the 'relative magnitude of the means' of the dimensions of the Teacher's Ideal was close to the Students' Means of the Ideal (TI-SI). However, there was greater distance between the Means of the Teacher's Actual and Students' Actual scores (TA-SA). In their study, the perception difference between Teacher Actual and Student Actual is 1.9, while that between Teacher Ideal and Student Ideal is 0.7. In this study, the perception difference between Teacher Actual and Student Actual is 1.31 whereas that between Teacher Ideal and Student Ideal is 1.29. Although there is much smaller difference between the two sets of perception differences in the study, the direction

of the finding is the same as Raviv et al. (1990).

Correlation of Learning-Centeredness and Perception Differences

The mean of the teacher's and students' perception differences of the six dimensions in the actual and ideal classroom provided each classroom a CES score for testing the relationship between the degree of learning-centeredness and the four sets of perception differences (TA-SA, TI-SI, TI-TA, SI-SA). These scores were plotted on the ordinate from 0 to 12. On the abscissa, those scores were matched with the percentage of learning-centeredness for each classroom, ranging form 0 to 100%.

From hypothesis 1, which dealt with the difference between Teacher's perception of Actual and Students' perception of Actual (TA-SA), it was found that perception differences decreased slightly along the learning-centeredness continuum with the smallest difference at the 100% learning-centered class--Class A (See FIGURE 2).

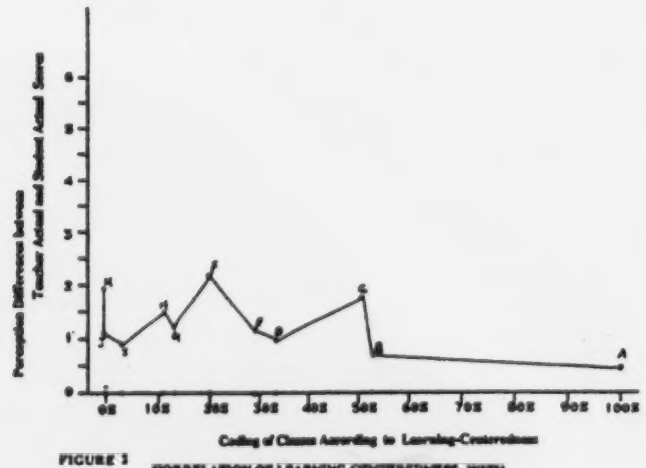

FIGURE 2 CORRELATION OF LEARNING-CENTEREDNESS WITH TEACHER ACTUAL- STUDENT ACTUAL PERCEPTION DIFFERENCES

In hypothesis 2 where Teacher's perception of Ideal and Students' perception of Ideal (TI-SI) was investigated, the perception differences followed a similar pattern as those in the first hypothesis, except classes F and C. There was also a general trend toward smaller difference in the 100% learning-centered class A (See FIGURE 3).

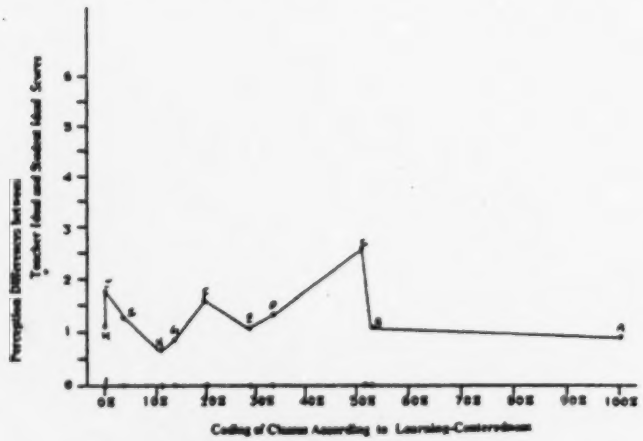

FIGURE 3 CORRELATION OF LEARNING-CENTEREDNESS WITH TEACHER IDEAL- STUDENT IDEAL PERCEPTION DIFFERENCES

In hypothesis 3 which related learning-centeredness to Teacher's perception of Ideal and Actual (TI-TA), no clear trend was manifested. Either end of the continuum agreed with the trend of having larger difference occurred in the less learning-centered class, and smaller in the more learning-centered class, but between the two ends, differences ranged widely from 3.67 for Class C to .16 in Class I. Four classes in the group had differences of .33 or less. There was very little regularity to the pattern of the relationship (See FIGURE 4 on the following page).

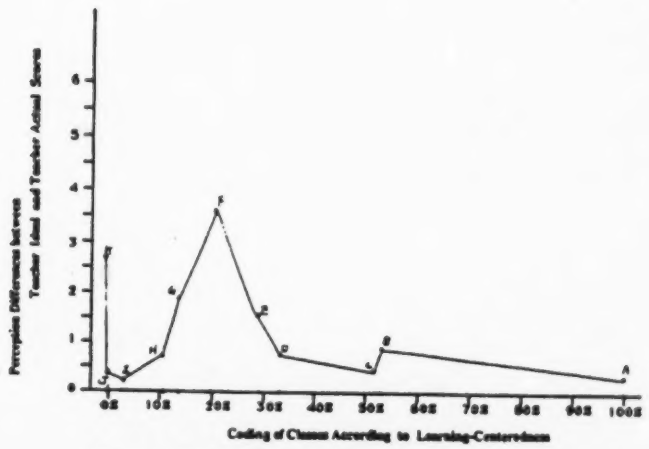

FIGURE 4 CORRELATION OF LEARNING-CENTEREDNESS WITH TEACHER IDEAL- TEACHER ACTUAL PERCEPTION DIFFERENCES

The most significant relationship between learning-centeredness and perception difference was found while looking into hypothesis 4 which dealt with the relationship between learning-centeredness and the perception difference of Students' Ideal and Students' Actual (SI-SA) (see FIGURE 5).

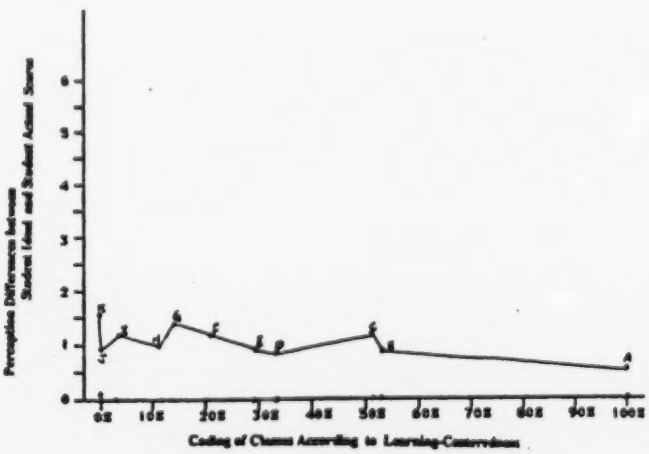

FIGURE 5 CORRELATION OF LEARNING-CENTEREDNESS WITH STUDENT IDEAL- STUDENT ACTUAL PERCEPTION DIFFERENCES

When the 11 classes were listed in accordance with the amount of learning-centeredness observed, Class A, with the most learning-centeredness, was also the one that had the smallest difference or perception gap. On the other end of the continuum, Classroom K with the least learning-centeredness, had the greater difference in perception. Among the 11 classes, compared to the other three sets of perception differences and their relationship with learning-centeredness, there was a relatively smooth line leading from the least learning-centered class to the most, without any outliers.

Discussion

The results of this study give the strongest support to hypothesis 4: The greater the percentage of learning-centeredness in the classroom, the smaller the difference between the student's perception of their ideal and their actual classrooms (SI-SA). In other words, a learning-centered class is the learning environment closest to the students' ideal classroom.

Although not mentioned in previous research, the researchers of this study intuitively assume that the majority of teachers would perceive their actual classrooms pretty much to be like their ideal (TI-TA) since they must strive to achieve that in their classrooms, but we saw no pattern. Teachers in this sample had a discrepancy between what they had and what they wanted.

Hypothesis 2, which investigated the relationship between learning-centeredness and teacher's and students' perception of actual classroom (TA-SA), gave support to Raviv et al. (1990) and Fraser's (1984) research, indicating that teachers and students evaluate their actual classrooms more differently than they do their ideal classrooms. Their vision of their

ideal environment is similar (TI-SI), but their evaluation of what they really have (TA-SA) was quite dissimilar from each other. In reality, in these classrooms, the smallest perception differences were found between students' ideal and actual classrooms (SI-SA) and they decreased as the classrooms became more learning-centered. The small perception differences between students' perception of their ideal and actual classroom seems to manifest that the cases in this study were already rather ideal. This could be related to the fact that the classes were all selected by the principal's criteria of good classes, although he did not consider whether or not they were learning-centered. The perception differences in the 11 classes got even smaller as they became learning-centered and this was the clearest trend indicated in all four hypotheses.

Although confirming previous research done by Raviv et al. (1990) on perception differences, this study did not strongly support the relationship between learning-centeredness and perception differences between the Teacher's and the Students' perception on their actual classroom (TA-SA)--hypothesis 2. From Figure 2, Class C and Class F stand out among the 11 classes. A close look at the nature of the two classes suggest some possible explanations. From class observation and conversation with the teacher, it was evident the teacher in Class F was a proponent of school reform. Possibly the teacher's ideology caused him to put a high expectation on the actual learning environment of his classroom. His low scoring of student involvement and affiliation (see Appendix E), seems to suggest that he found aspects of his class far from his ideal reformed learning environment.

As for Class C, there seemingly exists great discrepancy between the teacher's

perception and students' perception of Involvement, Teacher Support and Rule Clarity. In this class, students were first engaged in drill-and-practice and then grouped for gaming. The basic idea of the game was as follows: The teacher initiated a sentence. Any student from each group might be called to respond to the teacher. If a student succeeded, the group earned points. If the student failed to make a correct response, the opportunity for responding and possibly scoring was given to another group. The group accordingly lost points. It is the researchers' inference that while the teacher regarded the game as involving students in a highly motivated learning process, students may have taken it as a competitive activity, lacking teacher support. The absence of agreement between the teacher's and students' perception of Rule Clarity could be a result of the nature of the game itself.

Based on current study, there are some recommendations for further research. The smallness of the sample size (typical research on perception differences used at least 100 classrooms) and selectivity of the classes included in the study do not allow a more systemic conclusion. If the cases had been randomly selected, the observation tool may have revealed clearer trends and relationships and would have made the outliers less noticeable.

Moreover, if the observations had spanned across the school year, we might have identified the percentage of learning-centeredness more accurately, and this might have also made the correlations more revealing.

Other than increasing the sample size, the researchers also believe that interviewing both the teachers and students from the 11 classes will help the validity of the degree of learning-centeredness. Through interview, the researchers would have more insight into the

causes of the perception differences than might be readily observable and relate those to the CES dimensions.

Although there are many observation forms for measuring class activity, but none of them have focused on the assessment of learning-centeredness. A learning-centered class embodies numerous characteristics captured by previous researchers, such as McKeachie (1954), Faws (1949), and Banathy (1991). In this study, there were only four behaviors investigated. Were it not for the subtlety of defining human behavior and the invisibility of human mental activity, more characteristics of a learning-centered class could have been investigated and have provided a more comprehensive view of the relationship between learning-centeredness and perception differences. The observation form itself needs refinement. For example, the number of categories could be increased.

What we take away from this study is the possibility that teachers wishing to work for more learning-centeredness in their classroom practices might move first, toward their own ideal and ultimately toward students' ideal. What could be more learning-centered than the student's ideal classroom? There are certain dimensions where students would prefer changes to occur in their ideal classroom. The dimensions showing the smallest differences between actual and ideal classrooms were Teacher Support, Task Orientation, Order and Organization, and Rule Clarity while the ones showing the greatest differences were Involvement and Affiliation. For the future research, the teachers could be given feedback and work on those dimensions where students express a need for improvement.

This study's major contribution is to link the significant role of classroom

environment to the learning-centeredness. As was cited in Walberg (1984), classroom environment has been one of the most neglected areas of classroom improvement even though it is one of the most alterable of the variables. This study had made an initial step toward examining the significance of classroom climate or environment in the effort to redesign education.

Previous research using the Classroom Environment Scale had focused on the comparison of teacher's and students' perception of the actual classroom or teacher's and students' perception of ideal classrooms. This study has made an initial step toward examining the significance of classroom climate or environment in the effort to redesign education. Thus, this study helps to specify ways that classrooms can change the focus to learning and come closer to having an environment that reflects what every student dreams of for the future instruction. The strong correlation between learning-centeredness and students' perception of ideal and actual classroom (SI-SA) found in this study has evidenced a promising trend for future research.

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APPENDIX A Classroom Observation

date_____ time_____

class _____ instructor_____

duration / time	Teacher Talk B - - - E	Group Interaction B - - - E	Student-Resource B - - - E	Student-Student B - - - E
1				
2				
3				
4				
Definition	. Teacher presentation . lecture . with no group interaction	. Large / small group interaction . not whole class	. Human resources (teacher or peers)	. two students only . public interaction

APPENDIX B. CLASSROOM ENVIRONMENT SCALE

DIRECTIONS

This questionnaire contains statements about practices which could take place in this classroom. You will be asked how well each statement describes what your classroom is actually like.

There are no 'right' or 'wrong' answers. Your opinion is what is wanted.

Think about how well each statement describes what your actual classroom is like. Draw a circle around

(True) if it is TRUE or MOSTLY TRUE that the practice actually takes place;
(False) if it is FALSE or MOSTLY FALSE that the practice actually takes place.

Be sure to give an answer for all questions. If you change your mind about an answer, just cross it and circle another.

Some statements in this questionnaire are fairly similar to other statements. Don't worry about this. Simply give your opinion about all statements.

CLASS_____ DATE _____

Remember you are describing your actual classroom	(Circle) your answer
1. Students put a lot of energy into what they do here.	True False
2. Students in this class get to know each other really well.	True False
3. This teacher spends very little time just talking with students.	True False
4. We often spend more time discussing outside student activities than class-oriented material.	True False
5. This is a well-organized class.	True False
6. There is a clear set of rules for students to follow.	True False
7. Students daydream a lot in this class.	True False
8. Students in this class aren't very interested in getting to know other students.	True False
9. The teacher takes a personal interest in students.	True False
10. Getting a certain amount of classwork done is very important in this class.	True False
11. Students are almost always quiet in this class.	True False
12. Rules in this class seem to change a lot.	True False
13. Students are often "clockwatching" in this class.	True False
14. A lot of friendships have been made in this class.	True False
15. The teacher is more like a friend than an authority.	True False
16. Students don't do much work in this class.	True False
17. Students fool around a lot in this class.	True False
18. The teacher explains what will happen if a student breaks a rule.	True False
19. Most students in this class really pay attention to what the teacher is saying.	True False
20. It's easy to get a group together for a project.	True False
21. The teacher goes out of his/her way to help students.	True False
22. This class is more a social hour than a place to learn something.	True False
23. This class is often very noisy.	True False
24. The teacher explains what the rules are.	True False

(Teacher use only I____ A____ TS____ TO____ OO____ RC____)

ideal

CLASSROOM ENVIRONMENT SCALE

DIRECTIONS

This questionnaire contains statements about practices which could take place in a classroom. You will be asked how well each statement describes what your **ideal** classroom is like.

There are no 'right' or 'wrong' answers. Your opinion is what is wanted.

Think about how well each statement describes what your ideal classroom is like. Draw a circle around

(True) if it is TRUE or MOSTLY TRUE that the practice would take place;
(False) if it is FALSE or MOSTLY FALSE that the practice would take place.

Be sure to give an answer for all questions. If you change your mind about an answer, just cross it and circle another.

Some statements in this questionnaire are fairly similar to other statements. Don't worry about this. Simply give your opinion about all statements.

CLASS_____ DATE _____

Remember you are describing your ideal classroom	(Circle) your answer
1. Students would put a lot of energy into what they do here.	True False
2. Students in this class would get to know each other really well.	True False
3. This teacher would spend very little time just talking with students.	True False
4. We often would spend more time discussing outside student activities than class-oriented material.	True False
5. This would be a well-organized class.	True False
6. There would be a clear set of rules for students to follow.	True False
7. Students would daydream a lot in this class.	True False
8. Students in this class wouldn't be very interested in getting to know other students.	True False
9. The teacher would take a personal interest in students.	True False
10. Getting a certain amount of classwork done would be very important in this class.	True False
11. Students would be almost always quiet in this class.	True False
12. Rules in this class would seem to change a lot.	True False
13. Students would be often "clockwatching" in this class.	True False
14. A lot of friendships would be made in this class.	True False
15. The teacher would be more like a friend than an authority.	True False
16. Students wouldn't do much work in this class.	True False
17. Students would fool around a lot in this class.	True False
18. The teacher would explain what will happen if a student breaks a rule.	True False
19. Most students in this class would really pay attention to what the teacher is saying.	True False
20. It would be easy to get a group together for a project.	True False
21. The teacher would go out of his/her way to help students.	True False
22. This class would be more a social hour than a place to learn something.	True False
23. This class would be often very noisy.	True False
24. The teacher would explain what the rules are.	True False

(Teacher use only I____ A____ TS____ TO____ OO____ RC____)